

VDOE Science Update

June 22, 2016

Science is a commitment to a systematic way of thinking, an allegiance to a way of building knowledge and explaining the universe through testing and factual observation. The thing is, that isn't a normal way of thinking. It is unnatural and counterintuitive. It has to be learned. Scientific explanation stands in contrast to the wisdom of divinity and experience and common sense. Common sense once told us that the sun moves across the sky and that being out in the cold produced colds. But a scientific mind recognized that these intuitions were only hypotheses. They had to be tested.

-Atul Gawande

To view the whole presentation, go to <https://www.youtube.com/watch?v=QH7yhLpqdZg>.

Teacher Resources



Change the Equation Survey Results- A new survey of American teenagers from the [Amgen Foundation](#) and Change the Equation finds that teens like science and would welcome the opportunity to do more engaging, hands-on science in school. Yet the survey also reveals that teens lack access to real-world science experiences, out-of-school opportunities, and professional mentors, which is limiting their chances to pursue science any further. For more information concerning the survey, go to [Change the Equation](#).



Gene Drives on the Horizon: Advancing Science, Navigating Uncertainty, and Aligning Research with Public Values (2016)- Research on gene drive systems is rapidly advancing. Many proposed applications of gene drive research aim to solve environmental and public health challenges, including the reduction of poverty and the burden of vector-borne diseases, such as malaria and dengue, which disproportionately impact low and middle income countries. However, due to their intrinsic qualities of rapid spread and irreversibility, gene drive systems raise many questions with respect to their safety relative to public and environmental health. Because gene drive systems are designed to alter the environments we share in ways that will be hard to anticipate and impossible to completely roll back, questions about the ethics surrounding use of this research are complex and will require very careful exploration. Download this publication for free at [National Academy Press](#).

Teacher Opportunities



The Chesapeake Bay Trust Mini Grant Program was established to provide accessible funds to schools, organizations, and agencies for pre-K-12 Environmental Education to educate students about their local watersheds and how they can become environmental stewards and make a difference in watershed health. To accomplish this goal the program supports meaningful outdoor learning experiences around a watershed issue investigation including field trips, fieldwork, student-led action projects and schoolyard habitat projects as well as building teacher capacity to implement environmental education including professional development trainings and programs to advance environmental literacy in the Chesapeake Bay region. Up to \$5,000 can be awarded. Apply by **August 5, 2016**



Apply for NPS Challenge Cost Share Grants by July 1

Grants of \$25,000 are available for a range of project ideas that serve urban communities, engage youth with National Parks, and connect people to the outdoors. Educational institutions or not-for-profit organizations are eligible to partner with NPS for work performed in collaboration with NPS-administered parks, including National Parks, National Trails, and Wild and Scenic Rivers.

The Green Strides Webinar Series Continues This Summer

The Green Strides Webinar Series features sessions that provide free tools to reduce schools' environmental impact and costs; improve health and wellness; and teach effective environmental education. Consult the [webinar calendar](#) for free webinars related to school, district, and postsecondary sustainability.



"STEAM 3.0 - aka STEM + the Arts"

The STEAM 3.0-aka STEM + the Arts will be held July 20, 2016 at the Manassas campus of Northern VA Community College, from 8:30 - 2:30. This is VAST Region IV's third annual STEAM-infused instruction professional development workshop. All educators and interested folks are welcome. School teams are encouraged. Keynote speaker is a NY times best-selling author. The link to the VAST website page is: <http://vast.org/regional-information.html> See flyer with more information at this link: <http://www.vast.org/docs/region4steamflyer.pdf>



Earth Science Week 2016 Toolkits are available for advance orders now! The kit contains everything you need to prepare for Earth Science Week (October 9-15, 2016), which celebrates the theme "Our Shared Geoheritage. To ensure that you are among the first to receive these educational resources, order yours today. The Toolkit will ship starting in mid-August 2016. If the kits are pre-ordered the cost is \$7.95 which includes shipping. Bulk discounts are available for orders of multiple kits. For ordering, special shipping, bulk orders, and more information, visit <http://www.earthsciweek.org/materials> or phone AGI Publications at 703-379-2480.



SimScientists: Model Progressions Pilot project

This instructional module development project aims to use technology to give students ways to explore and express their science knowledge through computer simulations of science systems. Participating teachers will receive training, a stipend up to \$1000 for their involvement in the study, as well as access to simulation-based computer instructional modules.

In order to participate, middle grade science teachers must be planning to teach units on **Ecosystems AND Genetics, within the same grade**, and be willing to use two suites of SimScientists simulation-based instructional modules for both Ecosystems AND Genetics units in their classroom. The pilot testing would need to occur during the beginning of the 2016-17 school year, with BOTH units and all study activities ending no later than March 15, 2017. Please see the "SimScientists Model Progressions Strand" for more information on these units: <https://wested.box.com/s/2sshcgx5qzrwz1061b5oa8dtxfmc64s>

Aquatic WILD & Trout in the Classroom Professional Development Workshop

Join the VA Department of Game and Inland Fisheries and Trout Unlimited for a free one day workshop designed for *Trout in the Classroom* Teachers. Workshops will be held in Richmond on July 13th and Virginia Beach on August 3rd. For more information or to register, please email

Kris.Isaacs@dgif.virginia.gov.

NASA Langley's Annual Youth Day

NASA Langley's Office of Education is looking for volunteers to do NASA hands-on activities during NASA Langley's Annual Youth Day. The event will take place on Tuesday, August 2nd from 9am – 2pm at NASA Langley Research Center in Hampton, VA. The ages of students expected at this event are 5 to 12 year olds. All volunteers will receive hours of professional development for every hour they participate with us. If you would like to volunteer or have any questions please contact NASA Education Specialist Marilé Colón Robles at Marile.ColonRobles@nasa.gov or 757-864-8672.

National Park Service Teacher Workshop

Shenandoah National Park will present the 2nd-6th grade Teacher Workshop on Friday, September 30, 2016, from 9am-3pm. At this free workshop, teachers will learn how to incorporate the park's 2nd – 6th grade programs into their classroom lesson plans. Park rangers will familiarize teachers with Shenandoah National Park and the program materials, introduce classroom pre-visit and post-visit activities, demonstrate ranger-led activities planned for the students, and define the responsibilities of teachers, rangers, students, and chaperones on field trips. Workshop attendance is required before bringing students on a park program. To register, or for more information, call the Shenandoah National Park Education Office at 540-999-3500, ext. 3489, or email shen_education@nps.gov.

Virginia Tech Week of Science!

Please join Virginia Tech for a week of exciting STEM exhibits, presentations, and hands-on activities! The Week of Science starts on Friday, September 30 with a school preview day at the Science Museum of Western Virginia in Roanoke. Saturday, October 1 will be a maker event at the National Capital Region. Sunday, October 2 and Monday, October 3 will be the Southwest Virginia STEM Summit, a teacher professional development and regional economic development event. The Virginia Tech Science Festival will be held in Blacksburg on Saturday, October 8. Program and registration for the STEM Summit: <http://www.cpe.vt.edu/swvstem/>

2016 Virginia Association of Science Teachers (VAST) Professional Development Institute (PDI)

The VAST PDI theme is The Faces of Science in Virginia. It builds upon last year's PDI theme Designing Inquiring Minds. The Faces of Science showcases the rich Virginia science resources that are available to you through the many science organizations and companies in Virginia. For a full description of the theme and strands, visit <http://www.vast.org/presenters.html>. The VAST Professional Development Institute will be held from **November 17-19** in Williamsburg, VA.

Inquiry Corner

As educators, we each have our tool-box of lessons and strategies that we can rely on to engage students in science education. Please consider submitting some of your ideas to the Inquiry Corner! Email any ideas to anne.petersen@doe.virginia.gov. And happy summer!

Student Opportunities



[Apply for a GreenWorks! Environmental Education Grant by Sept. 30](#)

Project Learning Tree offers grants up to \$1,000 to schools and youth organizations for environmental service-learning projects that link classroom learning to the real world. Students implement an action project they help design to green their school or to improve an aspect of their neighborhood's environment. The projects partner students with their whole school, local businesses and/or community organizations, and provide opportunities for student leadership. For more info, please go to [Project Learning Tree](#).

Virginia is for Lovers of Summer Learning

The Virginia Department of Education has provided a web based resource for students and parents with different summer learning opportunities for students. These resources are provided for all different grade levels and academic areas. Refer students to [Virginia Is for Lovers of Summer Learning](#) if they are interested in enriching their understanding of science over the summer!

Articles



[What We Call Misconceptions May Be Necessary Stepping-Stones Toward Making Sense of the World](#)-this article emphasizes the importance of examining student misconceptions and correcting them with sense-making activities. The research suggests using activities that engage students in science and engineering practices that will help them develop their understanding of disciplinary core ideas and cross-cutting concepts and, subsequently, the world around them.

Highlighted Superintendent's Memos

MEMO 097-16

[PluggedInVA Grant Application for 2016-2017](#)

Contact Us

As always, please contact one of VDOE Science Team if you have questions.

Jim Firebaugh (Jim.Firebaugh@doe.virginia.gov)

Tina Mazzacane (Tina.Mazzacane@doe.virginia.gov)

Anne Petersen (anne.petersen@doe.virginia.gov)

Eric Rhoades (Eric.Rhoades@doe.virginia.gov)